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Date: December 17, 2008
To: Examiner M. Lee
From: Aly Z. Dossa
Pages Including Cover: 4
RE: Application No.: 10/824,450

File: 03226/417001
Fax Number: (571) 270-2648

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Dear Examiner Lee:

Further to our conversation today, please find attached a claim set including the amendments we discussed. I authorize you to make the aforementioned amendments in an Examiner's Amendment. If you have any questions, please contact me at 713.890.1709.

Best regards,



Aly Z. Dossa (Reg. No. 63,372)

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Application No.: 10/824,450

Docket No.: 03226/417001; SUN040872

EXAMINER'S AMENDMENT

1. (Currently Amended) A method for tracing an instrumented program on a processor having an x86 architecture, comprising:
 - triggering a probe in the instrumented program;
 - obtaining an original instruction associated with the probe, wherein obtaining the original instruction comprises searching a look-up table using a program counter value, wherein the look-up table comprises the original instruction associated with the probe and an address associated with the original instruction~~[[:]], and wherein the program counter value corresponds to a current address of a first thread executing in the instrumented program;~~
 - allocating a second scratch space for a second thread;
 - loading the original instruction into the second scratch space, wherein the scratch space is allocated on a per-thread basis, and wherein a first scratch space for ~~[[a]]~~ the first thread executing in the instrumented program was previously allocated;
 - loading a jump instruction for the x86 architecture into the second scratch space wherein the jump instruction includes a next program counter value;
 - executing the original instruction in the second scratch space using ~~[[a]]~~ the second thread to collect data; and
 - executing the jump instruction in the second scratch space using the second thread.
2. (Currently Amended) The method of claim 1, further comprising:
 - emulating the original instruction to determine the program counter value if the original instruction is a control-flow instruction; and
 - returning control to the second thread at an address of the program counter value if the original instruction is ~~[[a]]~~ the control-flow instruction.
3. (Previously Presented) The method of claim 1, further comprising:
 - determining the next program counter value by incrementing the program counter value using a size of the original instruction.

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4. (Original) The method of claim 1, wherein the probe corresponds to a trap.
5. (Canceled)
6. (Canceled)
7. (Original) The method of claim 1, wherein the instrumented program is executed on a multi-thread architecture.
8. (Currently Amended) A system for tracing an instrumented program on a processor having an x86 architecture, comprising:
 - a first thread configured to execute the instrumented program;
 - a second thread configured to execute the instrumented program;
 - a first scratch space allocated for the first thread;
 - a program counter value corresponding to a current address of the first thread;
 - a look-up table arranged to store an address and a corresponding original instruction;
 - a trap handler configured to halt execution of the second thread when a trap instruction corresponding to a probe is encountered, use an address of the trap instruction the program counter value to obtain the corresponding original instruction from the look-up table, and generate load a jump instruction into a second scratch space to an address in the instrumented program, wherein the jump instruction includes a next program counter value;
 - a first scratch space allocated for the first thread;
 - [[a]] the second scratch space arranged to store the original instruction and the jump instruction, wherein the second scratch space is allocated on a per-thread basis, and wherein the first scratch space for the first thread executing in the instrumented program was previously allocated; and
 - an execution facility for executing the original instruction in the second scratch space to collect data and executing the jump instruction, wherein the execution facility is a processor based on the x86 architecture.

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9. (Original) The system of claim 8, further comprising:
a buffer for storing the data.
10. (Currently Amended) The system of claim 8, further comprising:
a tracing framework configured to emulate the original instruction to determine a value of [[a]] the program counter if the original instruction is a control-flow instruction and to return control to a thread at an address of the program counter value if the original instruction is [[a]] the control-flow instruction.
11. (Original) The system to claim 8, wherein the trap handler sets a destination of the jump instruction to a next address immediately following an address of the trap instruction.
12. (Canceled)
13. (Original) The system of claim 8, wherein the instrumented program is executed on multi-thread architecture.